

WHAT IS CLAIMED IS:

1. An electrical connector locking system, comprising:
  - a first connector receptacle provided on an electrical connector box, the first connector receptacle configured to receive and engage with a first electrical connector;
  - a lock cover joinable to the first electrical connector insertable into the first connector receptacle, the lock cover being pivotably supported by a pivot base; and
  - a first engagement portion provided on the lock cover, the first engagement portion being engageable with a second engagement portion provided on the first electrical connector;wherein a double locking mechanism is formed by the first electrical connector engaging with the first connector receptacle upon insertion therein, and by the lock cover pivoting to a position where the first engagement portion engages with the second engagement portion on the first electrical connector.
2. The electrical connector locking system according to claim 1, further comprising:
  - an interference flange located in a vicinity of the first connector receptacle; and
  - a stopper block provided on the lock cover, the stopper block engageable with the interference flange to restrict the pivoting movement of the lock cover and to keep the lock cover away from the first connector receptacle,wherein pivoting movement of the lock cover toward the first connector receptacle results in the stopper block riding over the interference flange, and the first engagement portion of the lock cover engaging with the second engagement portion of the first electrical connector.
3. The electrical connector locking system according to claim 2, further comprising:

a second connector receptacle configured to receive and engage with a second electrical connector, the pivot base being located between the first connector receptacle and the second connector receptacle, the lock cover being pivotable between the first connector receptacle and the second connector receptacle;

the interference flange being located between the first connector receptacle and the second connector receptacle, the lock cover preventing insertion of the second electrical connector in the second connector receptacle when the interference flange contacts the stopper block,

wherein the pivoting movement of the lock cover into engagement with the first connector receptacle allows the insertion of the second electrical connector to the second connector receptacle.

4. The electrical connector locking system according to claim 3, further comprising:

a stopper block contact edge comprising an upper edge on a second connector receptacle side of the interference flange; and

a deflection portion provided on the stopper block, the deflection portion engageable with the stopper block contact edge, so as to form a contact between the interference flange and the stopper block.

5. The electrical connector locking system according to claim 1, wherein the pivot base is formed on the external surface of the first connector receptacle.

6. The electrical connector locking system according to claim 1, wherein the pivot base protrudes from a case of the electrical connector box adjacent to the first connector receptacle.

7. The electrical connector locking system according to claim 1, wherein the first engagement portion comprises a latch window, and the second engagement portion comprises a latch engagement tab that engages with the latch window.

8. The electrical connector locking system according to claim 4, the lock cover comprising:

a pair of support arms supported by the pivot base;

an upper wall that is substantially oriented at 90 degrees to the upper edge of the pair of support arms, the upper wall configured to press against the first electrical connector;

sidewalls that extend from both sides of the upper wall each having a latch window comprising the first engagement portion, the latch window engaging with a latch engagement tab comprising the second engagement portion; and

the stopper block being formed between the pair of support arms under the upper wall.

9. The electrical connector locking system according to claim 1, wherein the first connector receptacle includes a locking lip located within the first connector receptacle, the locking lip engageable with the first electrical connector.

10. In combination with an electrical connector, an electrical connector locking system, comprising:

a first connector receptacle provided on an electrical connector box, the first connector receptacle configured to receive and engage with the electrical connector;

a lock cover joinable to the electrical connector insertable into the first connector receptacle, the lock cover being pivotably supported by a pivot base;

a first engagement portion provided on the lock cover; and

a second engagement portion provided on the electrical connector, the first engagement portion being engageable with the second engagement portion,

wherein a double locking mechanism is formed by the electrical connector engaging with the first connector receptacle upon insertion therein, and by the locking cover pivoting to a position where the first engagement portion engages with the second engagement portion on the electrical connector.

11. The combination according to claim 10, further comprising:  
an interference flange located in the vicinity of the first connector receptacle; and  
a stopper block provided on the lock cover, the stopper block engageable with the interference flange to restrict the pivoting movement of the lock cover and to keep the lock cover away from the first connector receptacle,

wherein pivoting movement of the lock cover toward the first connector receptacle results in the stopper block riding over the interference flange, and the first engagement portion of the lock cover engages with the second engagement portion of the electrical connector.

12. The combination according to claim 11, further comprising:  
a second connector receptacle configured to receive and engage with another electrical connector, the pivot base being located between the first connector receptacle and the second connector receptacle, the lock cover being pivotable between the first connector receptacle and the second connector receptacle;

the interference flange being located between the first connector receptacle and the second connector receptacle, the lock cover preventing the insertion of another electrical connector in the second connector receptacle when the interference flange contacts the stopper block,

wherein the pivoting movement of the lock cover into engagement with the first connector receptacle allows the insertion of another electrical connector to the second connector receptacle.

13. The combination according to claim 12, further comprising:

a stopper block contact edge comprising an upper edge on a second connector receptacle side of the interference flange; and

a deflection portion provided on the stopper block, the deflection portion engageable with the stopper block contact edge, so as to form a contact between the interference flange and the stopper block.